3.11 PUBLIC HEALTH AND SAFETY, HAZARDS

This section describes the potential public health and safety issues that could occur as a result of implementation of the proposed Broad Beach Restoration Project (Project) in the Broad Beach Restoration area as well as the Off-site Project areas in Ventura and Los Angeles counties. The Project would include the operation of heavy construction equipment on Broad Beach. Consequently, the implementation of the Project would result in the potential for hazardous spills, during initial beach nourishment and dune construction, annual sand backpassing, and during the one or more subsequent renourishment events.

This section also discusses long-term safety issues associated with the existing temporary emergency rock revetment. Public trust impact criteria are used to assess the degree of the impacts and whether avoidance or minimization measures can be implemented to reduce impacts. Safety issues relating to wastewater disposal and drainage are discussed in Section 3.12, *Utilities and Service Systems*, and offshore hazards are addressed in Section 3.14, *Marine Vessel Safety,* and Section 3.2*, Marine Water and Sediment Quality*.

3.11.1 Environmental Setting Pertaining to the Public Trust

The environmental setting presented in this section represents the current conditions at the Project area and Off-site Project areas. These conditions include the existing configuration of the Project sites, existing operations, and present environment. Risks associated with public health and safety and a potential release of hazardous materials will be evaluated in relation to the current conditions.

Broad Beach Restoration Area Location and Description

The Broad Beach Restoration Area (Project area) encompasses approximately 42 acres extending laterally for more than 6,700 feet from Lechuza Point to Trancas Creek Lagoon, including both public trust lands and adjacent private lands that support residential uses. Additionally, it includes the Zuma Beach parking lot adjacent to Trancas Creek, proposed for temporary construction staging.

Off-site Project Areas Location and Description

The Off-site Project areas include areas of both potential direct and indirect Project impacts. Off-site Project areas subject to potential direct Project impacts include the Trancas Sediment Deposit, the Ventura Harbor sand trap, and the Dockweiler State Beach borrow as well as the sand transportation routes. The Off-site Project areas of potential indirect Project impacts includes areas affected by changes to sand supply and distribution from dredging activities and importation of sand to Broad Beach. Dredging at the Ventura Harbor and Dockweiler sites would result in a loss of sand supply from these sites, while importation of sand to Broad Beach would be expected to

increase sand supply to downcoast shorelines and habitats through littoral drift processes.

These areas are discussed in terms of their current conditions because material will be relocated from these sites to the Project area. This would not impact public safety in the Off-site Project areas, but could have impacts in the Project area.

Relationship Between Public Health and Safety and Public Trust Resources and Values

Public health and safety hazards have the potential to affect the public's right to use and enjoy the public trust resources on and near Broad Beach. The Project could affect public health and safety through initial dune and beach restoration activities as well as through backpassing events and the proposed renourishment event, both of which would occur on as as-needed basis in accordance with the pre-determined triggers outlined in Section 2.0, *Project Description*. Construction activities may present direct hazards, such as the presence of heavy machinery on the beach, or result in accidental release of hazardous materials. Public health and safety hazards could impede recreational use of this public trust resource.

Project Area Overview

Broad Beach is currently a low tide beach, with public use and access generally restricted to a narrow beach at moderate tides with all or most of the beach under water at higher tides. The beach is widest on the east and narrows to the west. The beach is backed by a 4,100-foot-long temporary emergency rock revetment over the majority of its reach, with other coastal protection structures, such as seawalls and sand bags, in other segments. Residences line the Project area with the exception of Trancas Creek lagoon and the west end of Zuma Beach. The beach is generally a wide wet sand beach at lower tides, but becomes increasingly rocky in the sheltered cove inside of Lechuza Point, where rocky intertidal habitat intermingles with intermittent sandy beach.

The emergency revetment currently presents a physical barrier to lateral access for beachgoers as they try to dodge wave run-up, as to a lesser extent do the geotextile revetments. The presence of the emergency revetment creates some limited threats to public safety because there is no longer a gradual transition from a lower to higher elevation along the beach. Thus, when the tide reaches the revetment at moderate to high tides, beach users are forced to climb up the revetment to avoid waves or the incoming tide, rather than walk farther up a sandy beach. Additionally, larger waves have the potential to push a recreational beach user into the rocks of the revetment.

The material composition of the sand in the vicinity of Broad Beach was tested in order to have a baseline understanding of potential chemical contaminants prior to the introduction of new material. The chemical testing of composite samples detected no contamination within the Broad Beach-Zuma Beach survey area (CFC 2011a). For more

information about the material composition of Broad Beach please see Section 3.6, *Geological Hazards and Mineral Resources*.

Off-site Project Areas Overview

Commercial boats, fishing boats, and recreational vessels currently traverse the Off-site Project areas along the coast of Malibu and in the vicinity of the borrow sites. The safety of these vessels is addressed separately in Section 3.14, *Marine Vessel Safety*.

The three potential dredge sand sources are included in the Off-site Project area, because the sand from the borrow sites would potentially be transferred to the Project area during beach nourishment. Testing of the chemical composition of the dredge material at two of the potential borrow sites—the areas offshore from Broad Beach and Dockweiler Beach—was performed by Coastal Frontiers Corporation, Inc. (CFC). No contaminants were detected in the Broad Beach-Zuma Beach survey area or the Dockweiler Beach survey area for following compound categories (CFC 2011a, CFC 2011b):

- Total Petroleum Hydrocarbons (TPH) as Gasoline and Light Hydrocarbons
- TPH as Diesel and Heavy Hydrocarbons
- TPH as Heavy Hydrocarbons
- Polycyclic Aromatic Hydrocarbons (PAHs) (suite of 16 compounds)
- Semivolatile Organic Compounds (Phenols) (suite of 15 compounds)
- Organochlorine Pesticides (suite of 22 compounds)
- Polychlorinated Biphenyls (PCBs) (suite of 9 compounds)

Testing of the chemical composition of the dredge material at the remaining borrow site—the Ventura Harbor sand trap—was performed by AMEC Geomatrix, Inc. for the proposed 6-year Federal Maintenance Dredging Program. Ventura Harbor sediments were deemed to be compatible for beach replenishment/nourishment actions (AMEC 2011). For more detailed information about material composition in the borrow site areas, please see Section 3.6, *Geological Hazards and Mineral Resources*.

3.11.2 Regulations Pertaining to the Public Trust

Regulations applicable to the Project are intended to protect public safety and regulate hazardous materials and hazardous wastes. These regulations also are designed to limit the risk of upset during the use, transport, handling, storage, and disposal of hazardous materials. State and local laws that address public health and hazardous materials in the coastal zone include the following.

State

California Health and Safety Code

The California Health and Safety Code includes the following laws intended to protect public health and safety in relation to hazardous materials.

Hazardous Material Release Response Plans and Inventory Law (Chapter 6.95). This law is designed to reduce the occurrence and severity of hazardous materials releases. This State law requires businesses to develop a Release Response Plan for hazardous materials emergencies if they handle more than 500 pounds, 55 gallons, or 200 cubic feet of hazardous materials. In addition, the business must prepare a Hazardous Materials Inventory of all hazardous materials stored or handled at the facility over the above thresholds. Also, all hazardous materials must be stored in a safe manner. Both the Release Response Plan and the Hazardous Materials Inventory must be supplied to the Certified Unified Program Agency (CUPA) for the program. In this case, the CUPA is the Santa Barbara County Fire Department (SBCFD).

Hazardous Waste Control Law (Chapter 6.5 and California Code of Regulations, Titles 22 and 26). This is the basic hazardous waste law for California. It establishes the criteria for defining hazardous waste, and its safe handling, storage, treatment, and disposal. The law is designed to provide cradle-to-grave management of hazardous wastes and reduce the occurrence and severity of hazardous materials releases. California regulates the management of hazardous wastes through the Health and Safety Code Chapter 6.5, sections 25100, et seq., and through the California Code of Regulations, Title 22, Division 4.5, Environmental Health Standards for the Management of Hazardous Wastes, as well as California Code of Regulations, Title 26, Toxics.

The California Coastal Act

The California Coastal Act includes the basic policies for managing and balancing the use of resources for State and national interests in the California Coastal Zone. The act specifically addresses protection of public health and safety. The enforceable policies of the California Coastal Management Program (CCMP) are the Chapter 3 policies of the Coastal Act. These policies address public safety and hazardous material releases in the following sections:

Section 30210 Access; recreational opportunities; posting. *In carrying out the requirement of Section 4 of Article X of the California Constitution, maximum access, which shall be conspicuously posted, and recreational opportunities shall be provided for all the people consistent with public safety needs and the need to protect public rights, rights of private property owners, and natural resource areas from overuse.*

> **Section 30231. Biological productivity; water quality.** *The biological productivity and the quality of coastal waters, streams, wetlands, estuaries, and lakes appropriate to maintain optimum populations of marine organisms and for the protection of human health shall be maintained and, where feasible, restored through, among other means, minimizing adverse effects of waste water discharges and entrainment, controlling runoff, preventing depletion of ground water supplies and substantial interference with surface water flow, encouraging waste water reclamation, maintaining natural vegetation buffer areas that protect riparian habitats, and minimizing alteration of natural streams.*
>
> **Section 30232 Oil and hazardous substance spills**. *Protection against the spillage of crude oil, gas, petroleum products, or hazardous substances shall be provided in relation to any development or transportation of such materials. Effective containment and cleanup facilities and procedures shall be provided for accidental spills that do occur.*

Local

The City of Malibu Local Coastal Program (LCP)

The Malibu LCP incorporates policies from the Coastal Act as well as defining specific policies for the city of Malibu. The policies that are relevant to the Project include:

> **Policy 2.39:** *The city shall not close, abandon, or render unusable by the public any existing accessway which the city owns, operates, maintains, or is otherwise responsible for unless determined to be necessary for public safety without first obtaining a Coastal Development permit. Any accessway which the city or any other managing agency or organization determines cannot be maintained or operated in a condition suitable for public use shall be offered to another public agency or qualified private association that agrees to open and maintain the accessway for public use.*
>
> **Policy 4.26:** *Development on or near sandy beach or bluffs, including the construction of a shoreline protection device, shall include measures to insure that: (1) no machinery shall be allowed in the intertidal zone at any time to the extent feasible and (2) all construction debris shall be removed from the beach. (Resolution No. 07-04.)*

3.11.3 Public Trust Impact Criteria

For this analysis, determination of significance of potential public health and safety impacts is based on the level of safety precautions that would be implemented during replenishment activities. An impact to public health and safety would be significant if it would:

- Create a health hazard or potential health hazard; or

- Expose people to potential health hazards.

3.11.4 Public Trust Impact Analysis

The Project would have potential impacts to public health and safety both during construction activities and throughout the life of the Project. Construction activities may present short-term hazards during initial dune and beach restoration activities, as well as during the renourishment event and ongoing backpassing. The Project would improve public safety along Broad Beach during the estimated 10- to 20-year life of the beach nourishment due to burial of the emergency revetment; however, these benefits would diminish as the revetment is re-exposed over time.

Heavy equipment, including bulldozers, a crane and dump trucks would be operating on public trust lands during the initial nourishment event on Broad Beach for approximately 6 months, creating potential hazards to beachgoers and the potential for fuel and other hazardous materials spills.

A sand slurry pipeline would be used to convey sand onto the beach from offshore dredges, creating obstacles and potential hazards to the public associated with large pools of slurry sand/ water mixture and heavy equipment used for pipe relocation.

The Project would produce short-term public safety hazards at Broad Beach due to construction activities during initial dune and beach restoration activities, as part of all backpassing events, and during all renourishment events. Potential public safety hazards are related to (1) the operation of heavy construction machinery and distribution of sand across Broad Beach and the associated introduction of intertidal waters by this equipment and the slurry pipeline, and (2) the potential for an accidental release of hazardous materials that could result in impacts to human health or the environment. Ongoing operation of the Project would not result in any health risks associated with the use or generation of hazardous materials.

Beach and dune restoration would have mid-term beneficial impacts on public safety within the Project area over its design life due to the burial of the emergency revetment, which currently presents a limited public safety hazard. The revetment and other temporary and permanent seawalls would no longer act as hazards to public beach

users because they would be buried beneath the dunes. The Project would restore sandy beach conditions to Broad Beach, creating a substantial positive impact to public safety for the design-life of the nourishment Project so long as backpassing and nourishment continues at the Project area.

Over the long term, the revetment would present a public safety hazard. As nourishment sand is eroded from the beach, the revetment would be re-exposed, presenting many of the same adverse impacts as it currently creates.

Impact HAZ-1: Authorization of the Revetment Creates Hazards

Authorization of the emergency revetment could impact public health and safety by trapping beach users between large rocks and incoming surf and tides (Unsubstantial with Implementation of Avoidance and Minimization Measures, Class UI).

Impact Discussion

Authorization of the emergency revetment, portions of which overlie public trust lands and Access and Recreational Use Easements (AREs), would create a long-term potential public health and safety hazard for recreational users on Broad Beach during moderate and high tides. Presence of the revetment compels beach users to climb up the revetment to avoid higher tides, rather than walk farther up a sandy beach. Additionally, large waves have the potential to push a recreational beach user into the rocks of the revetment, with some potential for injury. By blocking access to existing public trust land and AREs, authorization of the revetment would force beachgoers into potentially unsafe situations over the long term. Further, as the central and eastern regions of the revetment would sustain damage until critical design conditions, this structure poses an additional safety hazard to beachgoers. In the event that a portion of the revetment is structurally compromised by wave action, the sudden movement of boulders may injure the public using the sandy beach, or climbing on the exposed revetment.

The Project would offset the impacts of the revetment by burying the revetment under a restored sand dune habitat over the anticipated 10- to 20-year life of the Project. However, authorization of the revetment though a long-term lease and approval of Coastal Development Permits would create the potential for long-term impacts to public safety after nourishment activities end and natural coastal erosion causes the revetment to become exposed.

Avoidance and Minimization Measures

Avoidance and minimization measures that would address long-term impacts to public safety from the presence of the revetment are described in earlier sections of this document. First, AMM TBIO-1a – Implementation of a Comprehensive Dune Restoration Plan requires long-term monitoring and maintenance activities. This

avoidance and minimization measure requires that the coastal dune system be restored to approximately 55 feet to 102 feet in width and 20 feet in height. Second, AMM REC-5a – Requirement of Additional Nourishment and REC-5b – Financial Surety for Revetment Removal address required conditions for continued presence of the revetment and funding for potential future removal of the revetment.

Rationale for Avoidance and Minimization Measures

Construction of the emergency revetment has resulted in adverse impacts to public health and safety at Broad Beach. Measures that would improve public safety at Broad Beach include continuing beach nourishment activities over the long term or removing the revetment. Continued beach nourishment as outlined in AMM TBIO-1a would remove the risk to public safety presented by the revetment by maintaining a wide sandy beach for public use and keeping the revetment buried under sand. AMMs REC-5a and REC-5b would reduce future impacts to public health and safety due to the revetment by requiring removal of the revetment if future nourishment activities are not continued or prove insufficient to keep the revetment buried. The combined avoidance and minimization measures would reduce the potential health and safety hazards created by the presence of the emergency revetment in both the mid- and long-term.

Impact HAZ-2: Hazardous Materials Release During Construction

Hazardous material released from construction equipment on the beach during two nourishment events and backpassing could impact public safety (Unsubstantial with Implementation of Avoidance and Minimization Measures, Class UI).

Impact Discussion

Earthmoving equipment, such as bulldozers, scrapers, and other construction equipment would be operating on Broad Beach during backpassing and nourishment events. This would create the potential for accidental release of fuels, oils, lubricants, and other hazardous materials during the relatively extended periods that such machinery is operating on Broad Beach. If a fuel tank or an oil line were ruptured, these hazardous materials would be released onto the public beach, presenting a risk to public health and safety. Such spills are considered low probability as all equipment would be stored overnight in the staging area and all fueling would be restricted to the staging area as well. However, equipment can malfunction or suffer damage when operating in a dynamic environment like a beach. Therefore, such malfunctions or accidents that could lead to release of hazardous materials on public trust lands would be substantial impacts.

Avoidance and Minimization Measures

AMM HAZ-2a: Develop Hazardous Material Spill Prevention Control and Countermeasure Plan. A Hazardous Material Spill Prevention Control

and Countermeasure Plan (SPCCP) shall be prepared prior to implementing the Project to minimize the potential for, and effects from, spills of hazardous, toxic, or petroleum substances during construction of the Project. The SPCCP shall describe storage procedures and construction site housekeeping practices and identify the parties responsible for monitoring and spill response. Routine inspections and monitoring of Best Management Practices (BMPs) shall ensure minimal impacts to the environment occur. Common BMPs include use of containment devices for hazardous materials, training of construction staff regarding safety practices to reduce the chance for spills or accidents, and use of nontoxic substances where feasible. The SPCCP shall also describe actions required if a reportable spill occurs, such as which authorities to notify and the proper clean-up procedures. It shall also explicitly state procedures for containing, diverting, isolating, and cleaning up the spill, such that substantial adverse impacts on surface and groundwater quality would be minimized or avoided.

Rationale for Avoidance and Minimization Measures

BMPs and the SPCCP required under AMM HAZ-2 will reduce the potential of a release of hazardous materials on Broad Beach, and ensure that any accidental releases are properly handled. Impacts are considered not to be substantial with implementation of the avoidance and minimization measures.

Impact HAZ-3: Hazardous Conditions During Construction at Broad Beach

Construction activities at Broad Beach during nourishment and backpassing events could impact the safety of public beach users (Unsubstantial with Implementation of Avoidance and Minimization Measures, Class UI).

Impact Discussion

The presence and operation of large construction equipment, construction crews, and the dredge pipeline would pose a safety risk to recreational beach users during initial construction of the beach and dune system and during backpassing and renourishment events. Nourishment of the beach and dune system would require the use of a crane, two bulldozers, and the dredge pipeline on Broad Beach. The initial construction period for the Project is estimated to extend over 6 months, with future renourishment events estimated to require slightly less time than the initial nourishment due to the expectation of reduced volumes of sand required. It is estimated that nourishment and renourishment activities would involve up to 1,000 linear feet of the beach at any one time, and the remainder of the beach could remain open for public use.

The Project would apply BMPs for the construction activities during initial nourishment, renourishment and backpassing events. These practices include:

- public notice of upcoming construction activity;
- closure of construction areas to public access;
- implementation of a construction vehicle traffic management plan; and
- fencing off of the staging area.

The areas of active work (e.g., the training dikes, areas where earthmoving equipment is being used) would be clearly delineated and access controlled by contractors. Additionally, during backpassing operations, the responsible contractor would station a flag person at each access point to control construction traffic and pedestrian foot-traffic. In addition to these measures, the following avoidance and minimization measures would further reduce public safety hazards during construction activities at Broad Beach.

Avoidance and Minimization Measures

AMM HAZ-3a: Demarcation of Public Access Routes. Public access routes around construction areas shall be clearly marked. During replenishment operations, any pipeline extending along the beach, but outside of active replenishment areas, shall be covered with sand at key access points. The sand-covered parts of the pipeline shall create 'pedestrian bridges,' at approximately 300-foot intervals, to ensure sufficient public access.

AMM HAZ-3b: Provision of Contact for Reporting Hazards. The Applicant will provide the public with contact information in order to report immediate hazards related to the Project. This information shall be provided via public notice in a local paper and on signs at Broad Beach at least one week (7 days) prior to the commencement of any Project-related activities.

AMM HAZ-3c: Nightly Equipment Removal. Construction equipment placed on the beach shall be returned to the approved staging area at the end of each workday, with the exception of equipment being actively used for deposition of dredging sand through the night.

AMM HAZ-3d: Lighting of Dredge Pipeline. During night activities, the above-ground and floating portion of the dredge pipeline shall be lighted at 100-foot intervals as a safety precaution.

Rationale for Avoidance and Mitigation Measures

Because active replenishment areas would be closed to public access and sand 'pedestrian bridges' would be created over onshore pipeline sections to provide access along beaches with temporary pipelines, no substantial impacts to public health or safety would result with implementation of proposed avoidance and minimization measures. The Project would result in public health and safety benefits by adding sand to eroded areas, allowing for increased access to Broad Beach and burial of the emergency revetment.

Impact HAZ-4: Potential for Dredged Material Placed on Broad Beach to be Contaminated

Dredged material introduced to Broad Beach could impact public health and safety due to the chemical content of the new material (Unsubstantial with Implementation of Avoidance and Minimization Measures, Class UI).

Impact Discussion

Although not anticipated, the possibility exists that unforeseen wastes and materials could be dredged from the offshore borrow sites. The three potential borrow sites have been tested for the suitability of the dredge materials to be placed on Broad Beach and were found to be within acceptable physical and chemical parameters. The potential remains for portions of the dredge areas that were not sampled to contain contaminated sediments, and for those contaminated sediments to be placed on Broad Beach. In 2004, the USACE estimated that about one-fourth of the anticipated 50,000 - 100,000 cubic meters of sand dredged per year from Marina del Rey would be contaminated (USACE 2004). Historical data show that semi-volatile organics, heavy metals, pesticides and PCBs have all been found in dredged materials from Marina del Rey (USACE 2004). Given the close proximity of Marina Del Rey to the Dockweiler sand deposit, it is possible that some of the sand dredged from the Dockweiler sand deposit would have similar contaminants to those from Marina Del Rey. Additionally, the proximity of the Ventura sand trap to Ventura Harbor could increase the potential exposure of the sand to contaminants from higher vessel traffic and associated operations, such as chemicals, metals, fuel, and sewage (USEPA 2011).

Avoidance and Minimization Measures

AMM HAZ-4a: Response to Dredged Sand Contamination. In the event that dredge operators observe an oily sheen, toxic smell, or other indication that hazardous or dangerous materials are present in dredge spoils, dredging activities shall be relocated away from that site and a 250-yard buffer shall be established around the site. An evaluation shall be made by the appropriate authority (e.g., California Department of Fish and Game [CDFG] Office of Spill Prevention and Response) to determine the extent of the contamination and most appropriate remediation methods before dredging would be allowed to resume within the 250-yard buffer.

Additionally, in the event that contaminated dredged sand is inadvertently deposited within the Project area, the appropriate authority shall be contacted and shall determine the extent of the contamination and most appropriate remediation methods. The Applicant shall be required to fund the implementation of these remediation measures until the contamination within Project area has been reduced to a level determined to be safe by the appropriate authority.

Rationale for Avoidance and Minimization Measures

Although potential borrow sites have been sampled for the suitability of the dredge materials, pockets of contamination may occur within unsampled portions of the proposed dredge areas. AMM HAZ-4a would reduce the potential for previously undetected hazardous material to be deposited onto Broad Beach during the Project.

Impact HAZ-5: Burial of the Emergency Revetment

Burial of the emergency revetment could have short- to mid-term benefits to public health and safety (Beneficial, Class B).

Impact Discussion

The Project includes burial of the emergency revetment, so it would no longer pose a public safety hazard on Broad Beach as long as it remains buried. The current exposure of the emergency revetment presents a public health and safety hazard for recreational users on Broad Beach during mid to high tide by preventing the beach from having a gradual transition from lower to higher elevation. When the tide rises, recreational users are forced inland toward the rocky revetment, rather than toward higher elevation beach and dunes. The Project would include the restoration of Broad Beach and the associated dune system, which includes burial of the existing revetment under sand. This would restore sandy beach conditions and allow for increased public access and a gradual topographic transition along Broad Beach for the life of the nourished beach. This would result in a positive short- to mid-term impact to public health and safety at Broad Beach.

Table 3.11-1. Summary of Public Safety, Hazards Impacts and Avoidance and Minimization Measures

Impact	Avoidance and Minimization Measures
HAZ-1: Authorization of the Revetment Creates Hazards	**AMM TBIO-1a:** Implementation of a Comprehensive Dune Restoration Plan **AMM REC-5a:** Requirement of Additional Nourishment **AMM REC-5b:** Financial Surety for Revetment Removal
HAZ-2: Hazardous Materials Release During Construction	**AMM HAZ-2a:** Develop Hazardous Material Spill Prevention Control and Countermeasure Plan
HAZ-3: Hazardous Conditions During Construction at Broad Beach	**AMM HAZ-3a:** Demarcation of Public Access Routes **AMM HAZ-3b:** Provision of Contact for Reporting Hazards **AMM HAZ-3c:** Nightly Equipment Removal **AMM HAZ-3d:** Lighting of Dredge Pipeline
HAZ-4: Potential for Dredged Material Placed on Broad Beach to be Contaminated	**AMM HAZ-4a:** Response to Dredged Sand Contamination
HAZ-5: Burial of the Emergency Revetment	No AMMs recommended